

**CHAPTER 8**  
**AIR QUALITY**



## 8.0 AIR QUALITY

### 8.1 ENVIRONMENTAL SETTING

Ambient air quality is generally determined by climatological conditions, the topography of the air basin, and the type and amounts of pollutants emitted. The Bickford Ranch Specific Plan area is subject to a combination of topographical and climatic factors which result in high potential for regional and local pollutant accumulation. The following discussion describes relevant characteristics of the air basin, and provides an overview of physical conditions affecting pollutant accumulation and dispersion in the study area. The air quality setting also describes the sources, types, and health effects of major air pollutants.

#### 8.1.1 Climate and Topography

The study area is located in the Sacramento Valley Air Basin (SVAB), within the western third of Placer County. The mountain ranges which hem the SVAB influence wind directions and speeds in the Sacramento Valley; the Coast Range lies west of the SVAB, the Sierra Nevada lies to the east, and the Cascade range is north and east of the valley. These ranges channel winds through the Sacramento Valley, affecting the dispersion of air pollutants. Typically, marine air enters the Sacramento Valley through the Carquinez Strait and the Cordelia Gap in the Coast Range. Air flows from the south through the urban Sacramento area, pushing pollutants and their precursors north and east toward northern SVAB counties and the Mountain Counties Air Basin.

Temperature inversions occur frequently in the Sacramento Valley; typically, inversions occur when the sun heats upper layers of air, and cooler layers of air are trapped close to the ground. Local pollutants are also trapped within this layer, as inversions inhibit vertical air dispersion. Inversions occur frequently throughout the year in the study area, although they are most severe (in terms of limited ventilation) during the late summer and fall months.

Sacramento Valley weather is characterized by hot, dry summers and mild, wet winters. With clear skies and warm temperatures between May and October, the broader Sacramento area has a high potential for ozone accumulation.<sup>1</sup> During winter months, calm conditions and poor ventilation dominate the late evening and early morning atmosphere; these conditions are conducive to local carbon monoxide (CO) accumulation (CARB, 1974).

#### 8.1.2 Air Quality Standards and Existing Concentrations

Both federal and state governments have established standards for ambient pollutant concentrations. National and California standards have focused on six primary pollutants, called “criteria” air pollutants because such criteria have been set for them: ozone, CO, suspended particulate matter (PM), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), and lead. In the Sacramento area, CO and ozone are of particular concern, although the area also experiences high PM concentrations. Air quality regulations are discussed in Section 8.2 below.

Counties and metropolitan areas are classified as attainment or non-attainment with respect to state and federal ambient pollutant standards. An area’s classification is determined by comparing actual monitored air pollutant concentrations with state and federal standards. Air pollutant monitoring stations

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<sup>1</sup> The broader Sacramento area, for the purposes of this Draft EIR, consists of those areas in the lower portion of the Sacramento Valley Air Basin, including Sacramento, Yolo, Sutter, and parts of Solano and Placer Counties.

are operated throughout the broader Sacramento area by the California Air Resources Board (CARB) and assorted air districts. The two air monitoring stations currently operating closest to the proposed project site are CARB's Rocklin station, about six miles south of the proposed project site, and the Lincoln station approximately three miles west of the project site. The Rocklin station collects both particulate and gaseous pollutant monitoring data. The Lincoln station collects only particulate monitoring data. Other monitoring stations near the study area are located on North Sunrise Avenue in Roseville, about 11 miles south of the proposed project site, and in North Highlands in Sacramento County, approximately 14 miles southwest of the proposed project site. Table 8-1 presents a summary of CO, ozone, and PM<sub>10</sub> (particulate matter with diameter between 2.5 and 10 microns) data collected at the Rocklin station in recent years.

**Table 8-1**  
**Ambient Air Quality Standards and Maximum Measured Concentrations**  
**(Rocklin, 1992-1996)**

Pollutant	Federal Standard	992	Maximum Measured Concentration <sup>2</sup>				
			1993	1994	1995	1996	1997
<b>Carbon Monoxide</b>							
One-hour maximum concentration (ppm) <sup>2</sup>	35	20.0	4	5	3	3	** <sup>6</sup>
Number of federal standard violations				0	0	0	**
Number of state standard violations				0	0	0	**
Eight-hour maximum concentration (ppm)	9	9.0	2.3	2.3	1.6	1.6	**
Number of federal standard violations				0	0	0	**
Number of state standard violations				0	0	0	**
<b>Ozone</b>							
One-hour maximum concentration (ppm)	0.12	0.09	0.15	0.13	0.15	0.13	0.11
Number of federal standard violations				3	1	3	0
Number of state standard violations				21	29	25	9
Eight-hour maximum concentration (ppm)	0.08	N/A <sup>3</sup>	0.12	0.11	0.11	* <sup>4</sup>	*
Number of federal standard violations				9	20	19	*
<b>Respirable Particulates (PM<sub>10</sub>)</b>							
24-hour maximum concentration (µg/m <sup>3</sup> ) <sup>5</sup>	150	50	58	79	87	** <sup>6</sup>	66
Number of federal standard violations			0	0	0	**	0
Number of state standard violations			3	13	**	4	
Annual Arithmetic Mean (µg/m <sup>3</sup> )	50	N/A	29.6	24.2	39.5	**	21.9
Annual Geometric Mean (µg/m <sup>3</sup> )	N/A	30	25.8	24.5	34.3	**	15.7
<b>Fine Particulates (PM<sub>2.5</sub>)</b>							
24-hour maximum concentration (µg/m <sup>3</sup> )	65	*	*	*	*	*	*
Number of federal standard violations			*	*	*	*	*
Annual Arithmetic Mean (µg/m <sup>3</sup> )	15	*	*	*	*	*	*

Notes:

<sup>1</sup> CO and ozone monitoring data collected at CARB's Rocklin monitoring station. Particulate data collected at the Lincoln monitoring station.

<sup>2</sup> ppm = parts per million

<sup>3</sup> N/A = Not Applicable – No standard promulgated

<sup>4</sup> \* = Monitoring data not yet available. EPA implemented the PM<sub>2.5</sub> and the eight-hour ozone standards in 1997. A history of eight-hour monitoring data for ozone were made available by CARB for monitoring years 1992-1995; a PM<sub>2.5</sub> monitoring network is currently under construction throughout California.

<sup>5</sup> µg/m<sup>3</sup> = micrograms per cubic meter

<sup>6</sup> \*\* = No data reported.

Source: California Air Resources Board, California Air Quality Data (1992-1996)

## Ozone

Ozone concentrations in western Placer County typically exceed state and federal standards many times during the year, as shown by monitoring data in Table 8-1. Because these standard violations occur throughout the broader Sacramento area, EPA has designated the Sacramento Air Quality Maintenance Area, an area spanning the broader Sacramento area including western Placer County, as non-attainment area with respect to the federal one-hour ozone standard. Placer County is also designated as a non-attainment area for the state ozone standard.

Ozone is formed in the atmosphere in the presence of sunlight by a series of chemical reactions involving oxides of nitrogen ( $\text{NO}_x$ ) and reactive organic gases (ROG). Because these reactions occur on a regional scale, ozone is considered a regional air pollutant. A primary constituent of smog, ozone causes eye and lung irritation, visibility reduction, and crop damage. Sensitive receptors exposed to high ozone concentrations may suffer from reduced resistance to lung infection, eye irritation, and shortness of breath. Vehicular exhaust is the major source of ozone precursors in the Sacramento area.

Table 8-1 shows that the state ozone standard was exceeded on 146 days between 1992 and 1996 at the Rocklin monitoring station; the federal one-hour ozone standard was violated 15 times during this period. Although EPA only recently promulgated the eight-hour ozone standard of 0.08 parts per million (ppm), historical data indicate that ozone concentrations in the Rocklin area have exceeded the new federal standard. Ozone is a regional air pollutant, thus monitored concentrations at the Rocklin station are considered representative of ozone concentrations in the study area.

## Carbon Monoxide

CO standards exist for both one- and eight-hour average concentrations to regulate both short-term and extended-term pollutant exposure. Placer County has been designated as unclassified with respect to state CO standards, and has recently been classified as attainment with respect to federal one- and eight-hour CO concentration standards.

CO is a local pollutant caused primarily through incomplete fuel combustion; vehicular exhaust is the major source of CO in Placer County; however, residential wood stoves and fireplaces also contribute substantially to CO emissions. CO concentrations are highest near heavily traveled roadways, and particularly near intersections. Vehicular CO emissions increase as ambient temperature and average vehicle speed decrease, causing worst-case CO concentrations during winter months and in areas of heavy traffic congestion. High levels of CO can impair the transport of oxygen in the bloodstream and thereby aggravate cardiovascular disease and cause fatigue, headaches, and dizziness.

Table 8-1 shows that neither the state nor the federal eight-hour CO standard was violated between 1992 and 1996 at the Rocklin monitoring station.

## Particulate Matter

Airborne particulate matter is generally composed of minute separate particles in the air such as dust, soot, aerosols, fumes, and mists. The particles of primary concern are inhalable particulates. The characteristics, sources, and potential health effects of larger, or “coarse” particles (from 2.5 to 10 micrometers in diameter) and smaller or “fine” particles (smaller than 2.5 micrometers in diameter) are very different. Coarse particles, or  $\text{PM}_{10}$ , are generated by sources such as windblown dust, agricultural

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<sup>2</sup> Oxides of nitrogen include  $\text{NO}_2$ .

fields, and dust from vehicular traffic on unpaved roads. Fine particles, or  $PM_{2.5}$ , are generally emitted from activities such as industrial combustion, vehicle exhaust, and residential wood-burning stoves and fireplaces. Fine particles are also formed in the atmosphere when gases such as sulfur dioxide, nitrogen oxides, and volatile organic compounds, emitted by combustion activities, are transformed by chemical reactions in the air.

$PM_{10}$  standards exist for 24-hour average concentrations as well as for annual mean concentrations to regulate both short-term and chronic pollutant exposure. As shown in Table 8-1, 22 violations of the state 24-hour  $PM_{10}$  standard were recorded at the Lincoln monitoring station between 1993 and 1996. No exceedances of the federal  $PM_{10}$  standard were recorded during this period. Placer County is considered to be a non-attainment area for the state  $PM_{10}$  standard, and is unclassified with respect to the less stringent federal  $PM_{10}$  standard.

EPA promulgated the  $PM_{2.5}$  standard in 1997. A monitoring network to collect ambient  $PM_{2.5}$  data is currently under construction in California; therefore, no data are yet available with respect to this new standard.

### Nitrogen Dioxide

$NO_2$  is an indirect product of fuel combustion in industrial sources, motor vehicles, and other mobile sources (e.g., trains, airplanes, etc.).  $NO_2$  concentrations in Placer County are well within state and federal standards.

### Sulfur Dioxide

The major source of  $SO_2$  emissions is fuel-burning equipment in which fuel oil and/or coal is consumed. Typical sources of  $SO_2$  include power plants and steam generators; high  $SO_2$  concentrations generally occur in proximity to these sources.  $SO_2$  concentrations in Placer County are well within state and federal standards.

## 8.1.3 Existing Emission Sources

The CARB maintains an emission inventory to determine the sources of air pollution within the state's air basins, and to determine the quantities of pollutants emitted. Inventoried pollutants include total organic gases (TOG), ROG, CO,  $NO_x$ ,  $SO_2$ , PM, and  $PM_{10}$ . Table 8-2 presents a summary of current pollutant emission data for Placer County. Mobile sources are a major source of ozone precursor ( $NO_x$  and ROG) emissions in Placer County and the broader Sacramento area; in Placer County, mobile sources account for more than 90 percent of county-wide  $NO_x$  emissions, and 55 percent of county-wide ROG emissions.

Transportation factors which contribute to an area's mobile source emissions include the population, the number of on-road vehicles in use, the average daily vehicle trips, and the average daily vehicle miles traveled. The average daily trips in a given area probably has the greatest effect on pollutant emissions. A large percentage of pollutant emissions, particularly ROG, occur during the first few minutes of vehicle operation, and while the vehicle engine is cooling down. Because this large portion of ROG emissions is generated by means that are unrelated to the vehicle running time, ROG emissions do not increase with direct proportion to trip lengths; some short trips could produce almost as much ROG as longer trips.

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<sup>3</sup> Emissions estimates exclude emissions from that portion of Placer County which lies within the Lake Tahoe Air Basin.

**Table 8-2**  
**1996 Estimated Average Emissions – Placer County**

Source Category	Pollutant Emissions (Tons/Day)						
	TOG	ROG	CO	NO <sub>x</sub>	SO <sub>2</sub>	PM	PM <sub>10</sub>
<b>STATIONARY SOURCES</b>							
Fuel Combustion	0	0	1.8	1.3	0.1	0.3	0.3
Other Industrial Processes <sup>1</sup>	8.7	6.7	0	0.1	0	1.5	0.9
Total Stationary Sources	8.7	6.7	1.8	1.3	0.1	1.8	1.2
<b>AREA SOURCES</b>							
Solvent Evaporation	3.5	3.4	0	0	0	0	0
Miscellaneous Processes	6.7	3.3	51.7	1	0.1	31	19.1
Total Area Sources	10.2	6.7	51.7	1	0.1	31	19.1
<b>MOBILE SOURCES</b>							
On-Road Vehicles	15.9	14	135.9	19.3	0.3	0.7	0.6
Other Mobile	3.6	3.5	26.1	7.7	0.4	0.4	0.4
Total Mobile Sources	19.5	17.5	162	27	0.7	1.1	1.0
<b>NATURAL (NON-ANTHROPOGENIC) SOURCES</b>							
Total Natural Sources	0.1	0.1	1.1	0	0	0.2	0.2
<b>Total Placer County</b>	<b>38</b>	<b>31</b>	<b>217</b>	<b>29</b>	<b>1</b>	<b>34</b>	<b>22</b>

Notes:

<sup>1</sup> Emissions are primarily from construction and demolition activities, entrained road dust, and waste disposal.

Source: CARB, 1998a.

## 8.2 REGULATORY SETTING

Air quality in the study area is regulated by several agencies including EPA, CARB, and the Placer County Air Pollution Control District (APCD). Each of these agencies develop rules and/or regulations to attain various air quality goals. Although EPA regulations may not be superseded, both State and local regulations may be more stringent than federal air quality regulations. In general, state and federal agencies are responsible for regulating emissions from on-road and off-road vehicles and establishing air quality standards; local APCDs are responsible for implementing state and federal air quality regulations, permitting stationary sources of air pollution, and developing plans aimed at attaining ambient air quality standards. Emissions from indirect sources, such as automobile traffic associated with development projects, are addressed through APCD air quality plans.

Air quality is sometimes regulated on a county-by-county basis and sometimes on a regional (e.g., basin-wide) basis. This distinction is particularly relevant in Placer County, which spans three air basins in California: the southwestern third of the county lies within the SVAB; the northernmost portion of Placer County is within the Lake Tahoe Air Basin; and the remainder is within the Mountain Counties Air Basin. Because portions of Placer County lie within the SVAB, the District coordinates with other SVAB air districts to resolve basin-wide air pollution problems.

Placer County's General Plan contains policies governing development within Placer County. The policies relating to air quality are identified in the General Plan Consistency discussion in Section 8.3.

### 8.2.1 Federal

Under federal law, a large region called the Sacramento Air Quality Maintenance Area, which includes Sacramento, and parts of Yolo, Placer (including the study area), and Solano Counties, has received a severe non-attainment designation for the federal ozone standard. Accordingly, these regions must solve their ozone problems jointly.

The Districts of the SVAB, including Placer County, have developed the 1994 Sacramento Area Regional Ozone Attainment Plan (1994 Plan), which identifies source controls and trip reduction strategies aimed at achieving the federal ozone standard by the year 2005. The attainment strategy requires reductions of approximately 38 percent of ROG and 40 percent of NO<sub>x</sub> from 1990 baseline emissions. The strategy relies heavily on mobile source NO<sub>x</sub> reductions, since mobile sources generate approximately 90 percent of regional NO<sub>x</sub> emissions. The goal for attainment of federal standards is 2005; if Placer County does not achieve federal ambient air quality standards by the mandated deadline, the County may be subject to federal sanctions affecting transportation funding as well as U.S. EPA-mandated increased controls on industrial source emissions.

In 1997 EPA promulgated new ambient air quality standards for ozone and PM<sub>2.5</sub>. The new ozone standard of 0.08 ppm applies to rolling eight-hour concentrations of ozone, whereas previous standards (which will not be superseded by the new standard until the old standard is attained) applied only to one-hour ozone concentrations. As described in Section 8.1.2, CARB has computed average eight-hour ozone concentrations measured at the Rocklin station based on historical one-hour measurements; these data indicate that ozone concentrations in the Rocklin area have exceeded 0.08 ppm in past years. No ambient PM<sub>2.5</sub> data are currently available in the study area, however a PM<sub>2.5</sub> monitoring network is under construction in California. Current plans call for a PM<sub>2.5</sub> monitoring station to be located on North Sunrise Boulevard in Roseville.

### 8.2.2 State

Under State law, areas are designated as attainment or non-attainment on a county-by-county basis; Placer County on the whole is designated as attainment / unclassified with respect to CO, and as a severe non-attainment area with respect to the state ozone standard. The 1988 California Clean Air Act requires non-attainment areas to develop plans aimed at achieving state ambient standards. Placer County has developed an Air Quality Attainment Plan (AQAP) outlining strategies for achieving the state ozone ambient standard. The AQAP outlines both stationary and mobile emission source control measures, and emphasizes Transportation Control Measures and Indirect Source Control Measures as means of reducing mobile source emissions in Placer County. Measures in the AQAP include:

- Area-wide carpool/vanpool matching and assistance;
- City or County trip reduction ordinances;
- In new developments, provision of bikeways and bicycling support facilities and pedestrian amenities such as sidewalks, adequate crosswalks, and building entries near sidewalks rather than behind large parking lots;
- Use of alternative motor fuels and energy sources;
- Jobs-housing balance requirement for new developments;
- Mixed land use requirement, i.e., residences, workplaces, and services located closely enough that private motorized transit between them would not be necessary;
- Transit service expansion and operational changes;
- Parking space limitations; and,
- Suburban fringe area park-and-ride lots.

### 8.2.3 Local

At a local level, air quality is managed through land use and development planning practices, which are implemented by Placer County, and through permitted source controls, which are implemented by the Placer County APCD. The Placer County APCD is also the agency responsible for enforcing many Federal and State air quality requirements, and for establishing air quality rules and regulations.

The Placer County General Plan Air Quality Element provides county-wide goals and policies aimed at improving air quality. Goals and policies in the Air Quality Element parallel those identified in state and federal plans applicable to Placer County. General Plan policies applicable to the proposed project include the following:

**Policy 6.F.6:** The County shall require project-level environmental review to include identification of potential air quality impacts and designation of design and other appropriate mitigation measures or offset fees to reduce impacts. The County shall dedicate staff to work with project proponents and other agencies in identifying, ensuring the implementation of, and monitoring the success of mitigation measures.

**Policy 6.F.7:** The county shall encourage development to be located and designed to minimize direct and indirect air pollutants

**Policy 6.F.8:** The County shall submit development proposals to the PCAPCD for review and comment in compliance with CEQA prior to consideration by the appropriate decision-making body.

**Policy 6.F.9:** In reviewing project applications, the County shall consider alternatives or amendments that reduce emissions of air pollutants.

**Policy 6.F.10:** The County may require new development projects to submit an air quality analysis for review and approval. Based on this analysis, the County shall require appropriate mitigation measures consistent with the PCAPCD's 1991 *Air Quality Attainment Plan* (or updated edition).

**Policy 6.G.3:** The County shall encourage the use of alternate forms of transportation by incorporating public transit, bicycle, and pedestrian modes in County transportation planning and by requiring new development to provide adequate pedestrian and bikeway facilities.

**Policy 6.G.4:** The County shall consider instituting disincentives for single-occupant vehicle trips, including limitation in parking supply in areas where alternative transportation modes are available and other measures identified by the Placer County APCD and incorporated into regional plans.

**Policy 6.G.5:** The County shall endeavor to secure adequate funding for transit services so that transit is a viable transportation alternative. New development shall pay its fair share of the cost of transit equipment and facilities required to serve new projects.

**Policy 6.G.6:** The County shall require large new developments to dedicate land for and construct appropriate improvements for park-and-ride lots, if suitably located.

The Placer County APCD through its enhanced CEQA review has developed mitigation thresholds and significance thresholds for project-generated air pollutant emissions. These thresholds apply to both short-term and long-term air pollutant emissions. Projects with the potential to generate emissions exceeding any of the District mitigation thresholds would be required to implement additional mitigation strategies to reduce emissions. Projects with the potential to generate emissions exceeding the District significance thresholds would have a significant air quality impact, and would also be required to implement mitigation. Table 8-3 presents Placer County APCD significance thresholds.



**Table 8-3  
Placer County APCD Significance Thresholds**

<b>Pollutant</b>	<b>Thresholds For Implementation Of Mitigation Measures (lb/day)</b>	<b>Significance Thresholds (lb/day)</b>
Reactive Organic Gasses (ROG)	10	82
Nitrogen Oxides (NO <sub>x</sub> )	10	82
Sulfur Oxides	10	136
Particulate Matter (PM <sub>10</sub> )	82	82
Carbon Monoxide (CO)	550	550

Source: PCAPCD, 1998

### 8.3 IMPACTS

This section identifies and discusses the environmental impacts resulting from the proposed project and suggests mitigation measures to reduce the level of impact. A detailed discussion of mitigation measures is included in Section 8.4.

State CEQA Guidelines state that a project would normally have a significant adverse air quality impact if project-generated pollutant emissions would: cause a violation of an ambient air quality standard or worsen an existing violation; contribute substantially to an existing or projected air quality violation; expose sensitive receptors to substantial pollutant concentrations; or conflict with adopted environmental plans, policies, or regulations for air pollutants (CEQA Guidelines, 1995, 1998).

Potential significant impacts associated with air quality have been evaluated using the following criteria:

- Proposed project emissions cause or contribute to a localized exceedence of an air quality standard. Table 8-1 provides a summary of state and federal ambient standards;
- Proposed project emissions exceed any of the Placer County APCD significance criteria; or
- The proposed project conflicts with the policies identified in the Air Quality Element of the Placer County General Plan or the goals of the Air Quality Attainment Plan.

The proposed project could affect air quality during both construction and operation phases. Construction activities could result in criteria pollutant emissions through earthmoving activities, application of architectural coatings, and vehicle and equipment exhaust emissions. Proposed project operation would result in criteria pollutant emissions primarily from vehicular sources; however, landscape maintenance equipment, residential heating sources (natural gas heaters, fireplaces, and wood stoves), and other miscellaneous activities would also generate pollutant emissions. Emissions from proposed project construction and operation could contribute to both regional pollutant emissions and localized pollutant concentrations.

### 8.3.1 Construction Impacts

<b>IMPACT A-1:</b>	Construction activities would create short-term criteria air pollutant emissions
<b>SIGNIFICANCE:</b>	Significant (short-term); Less Than Significant (long-term)
<b>MITIGATION</b>	
<b>Proposed:</b>	Mitigation Measure G-B (Prepare and implement a grading and erosion control plan); A-A (Provide dust controls); A-B (Maintain construction equipment and vehicles); A-C (Implement a construction worker trip reduction program); A-D (Require use of low-emission construction materials and equipment where feasible); and T-A (Prepare and implement construction traffic management plans for onsite construction activities for Bickford Ranch Road and Sierra College Boulevard, and coordinate with appropriate agencies in the preparation and implementation of construction traffic management plans for required off-site improvements)
<b>Recommended:</b>	None
<b>RESIDUAL SIGNIFICANCE:</b>	Significant (short-term); Less Than Significant (long-term)

Emissions associated with proposed project construction would be generated by fugitive dust from earth-moving activities, construction workers traveling to and from the construction sites, heavy duty construction equipment operation, and application of architectural coatings. Construction activities would generate CO, ROG, NO<sub>x</sub>, and particulate emissions; pollutants such as CO and particulates usually create localized impacts near emission sources, while pollutants such as ROG and NO<sub>x</sub> contribute to regional pollutant concentrations.

Daily emissions generated during project construction would vary depending on the type and intensity of construction activity. The highest level of construction activity would occur during a combination of activities associated with mass grading, road construction, and vertical construction. In addition, it is possible (worst case) that construction of off-site sewer/water improvements could take place simultaneously with on-site mass grading. Tables 3-4 and 3-5 in Section 3.5.11 shows the estimated maximum level of construction activity that would occur if these activities were to occur simultaneously. These approximate equipment quantities and work force numbers are expected to be utilized over a 6- to 15-month period beginning in 1999. Following the mass grading phase, various portions of the proposed project would be developed on different schedules. Parks, the commercial center, and the fire station site would be among those areas that would be graded at the outset of proposed project construction, and constructed / developed at a later date.

**Table 8-4**  
**Estimated Maximum Proposed Project Construction Emissions**

Emission Source	Pollutant Emissions (lb/day)			
	ROG	NO <sub>x</sub>	CO	PM <sub>10</sub>
<b>Maximum Activity Level Construction Phase – Unmitigated</b>				
Construction Grading Fugitive Dust	0	0	0	500
Grading vehicle exhaust	212	2,135	0	329
Worker Trips	9	13	24	2
Stationary equipment	3	2	0	0
Mobile Equipment	23	365	0	23
Architectural Coatings	5,798	0	0	0
Asphalt Paving	26	0	0	0
<b>Total – Unmitigated</b>	<b>6,070</b>	<b>3,515</b>	<b>24</b>	<b>854</b>
<b>Maximum Activity Level Construction Phase – Mitigated</b>				
Construction Grading Fugitive Dust	0	0	0	128
Grading vehicle exhaust	201	2,978	0	264
Worker Trips	9	12	23	2
Stationary equipment	3	2	0	0
Mobile Equipment	22	347	0	21
Architectural Coatings	5508	0	0	0
Asphalt Paving	25	0	0	0
<b>Total – Mitigated</b>	<b>5,768</b>	<b>3,340</b>	<b>23</b>	<b>416</b>
<b>Placer County APCD Significance Criteria</b>	<b>82</b>	<b>82</b>	<b>550</b>	<b>82</b>

Average daily construction emissions were estimated for the maximum activity phase of project construction. Table 8-4 presents estimated emissions for this maximum construction activity level. Emissions from construction activities were estimated using CARB's URBEMIS7G emissions model; this model incorporates EPA and CARB emission factors and activity level assumptions, and allows for the calculation of emission reductions associated with implementation of mitigation measures.

During maximum project construction activity, the primary emissions would be dust from earthmoving activities, NO<sub>x</sub> from construction vehicle exhaust, and ROG from architectural coatings application. Earthmoving activities would contribute approximately 220 pounds of PM<sub>10</sub> per acre per month of earthmoving activity, or approximately 500 pounds of PM<sub>10</sub> per day; most of these fugitives would be expected to have diameters greater than 2.5 microns. Construction vehicle exhaust would generate ROG, NO<sub>x</sub>, and particulate emissions; because it would be a by-product of fuel combustion, it is likely that a substantial portion of particulate emissions from vehicle exhaust would be comprised of PM<sub>2.5</sub>.

As shown in Table 8-4, pollutant emissions during phases of maximum construction activity would exceed the Placer County APCD significance criteria for ROG, NO<sub>x</sub>, and PM<sub>10</sub>. A number of mitigation measures were identified to reduce potential construction emissions. These measures include:

- Water exposed earth surfaces as necessary to prevent visible dust emissions;
- Pave, use gravel cover, or apply dust control agents to all haul roads;

- Reduce speeds on unpaved roads to 15 mph or lower (this speed must be posted);
- Use tarpaulins for haul trucks which travel on public streets;
- Institute measures to reduce wind erosion when site preparation is completed;
- Maintain all construction equipment properly;
- Develop and implement a construction worker trip reduction plan aimed at achieving an average vehicle ridership of 1.5;
- Use low-VOC coatings per PCADCD Rules and Regulations; and
- Use low-VOC asphalt per PCADCD Rules and Regulations.

Table 8-4 provides an estimate of emission reductions realized from implementation of these measures. Implementation of these measures would reduce proposed project construction emissions; however, mitigated emissions would still exceed the Placer County APCD significance criteria for all three pollutants. Construction of the proposed project would thus result in a significant, short-term air quality impact.

### 8.3.2 Operational Impacts

Proposed project operation would cause direct pollutant emissions, from stationary sources such as fireplaces or machinery exhaust stacks; fugitive emissions, such as from consumer products (aerosols, etc.); and (primarily) indirect emissions, such as those generated by automobile trips traveling to and from the proposed project. Operational emissions would chiefly affect local pollutant concentrations, particularly automobile-generated CO concentrations near heavily traveled roadways, and region-wide emissions of ozone precursor pollutants.

<b>IMPACT A-2:</b>	Increase in localized CO concentrations along affected roadways
<b>SIGNIFICANCE:</b>	Less Than Significant
<b>MITIGATION:</b>	None Warranted

Local air quality impacts would result primarily from high CO concentrations near heavily traveled roadways. To evaluate whether traffic associated with the proposed project would create localized pollutant concentration impacts, CO concentrations for Existing Plus Project conditions, 2010 General Plan Plus Project conditions, and 2010 General Plan plus Buildout of Project Vicinity conditions (as described in Chapter 7) were modeled using Caltrans' CALINE4 pollutant dispersion model. Vehicle volumes and roadway configurations assumed for the analysis were the same as those assumed for the traffic analysis; congestion mitigations not included in the proposed project were not assumed for modeling. CO concentrations were modeled at intersections for which project-generated traffic would have the greatest effects, in terms of increased volume, increased congestion, or decreased average speeds. Receptors were assumed to be located for extended periods within 100 feet of the subject intersections; actual sensitive receptor locations are generally much farther from the intersections. CO modeling incorporated worst-cast meteorological conditions and evening peak-hour traffic volumes and speeds. Tables 8-5 and 8-6 provide results of the modeling effort.

As indicated in Tables 8-5 and 8-6, predicted future maximum CO concentrations are lower than existing CO concentration. This results from improvements in average motor vehicle emissions that occur as newer, more efficient vehicles take the place of older, more polluting vehicles. In addition, the intersection of English Colony Way and Taylor Road is currently unsignalized, thus no traffic near the intersection is free-flowing. Current plans call for this intersection to be signalized, which will reduce CO concentrations substantially in the vicinity of the intersection.

**Table 8-5**  
**Modeled Maximum One-Hour CO Concentrations<sup>1,2</sup>**

Intersection	Existing Plus Project	2010 General Plan		2010 General Plan and Buildout of Project Vicinity		Applicable Standard <sup>3</sup>
		No Project Alternative	Plus Project	No Project Alternative	Plus Project	
Sierra College Boulevard / English Colony Way	4.2	4.4	4.6	5.5	5.3	20
Sierra College Boulevard / Del Mar Avenue	9.4	8.0	9.0	8.7	9.3	
Sierra College Boulevard / Taylor Road	8.8	7.7	7.6	7.6	8.0	
Sierra College Boulevard / I-80 Westbound Ramps	10.3	7.5	7.3	7.4	7.5	
Sierra College Boulevard / I-80 Eastbound Ramps	8.5	7.3	7.7	8.1	8.2	
English Colony Way / Taylor Road	12.3	6.0	5.9	5.8	6.0	

<sup>1</sup> Maximum modeled concentrations include a background component, which represents the effect of all CO sources in the project vicinity, and a local component generated by vehicular traffic on the subject roadway. The background concentration was 4.0 ppm, the highest second-high monitored at the Rocklin monitoring station over a three-year period. No rollback was assumed for background concentrations, thus existing and future background concentrations were assumed to be the same.

<sup>2</sup> Emission factors were generated using Caltrans' CT-EMFAC model. Modeling was conducted following Caltrans methodology as described in Caltrans' *Air Quality Technical Analysis Notes*, June 1988.

<sup>3</sup> Applicable standard for CO concentrations are for California. California ambient CO concentration standards are more stringent than the corresponding federal standards.

**Table 8-6**  
**Modeled Maximum Eight-Hour CO Concentrations<sup>1,2</sup>**

Intersection	Existing Plus Project	2010 General Plan		2010 General Plan and Buildout of Project Vicinity		Applicable Standard <sup>3</sup>
		No Project Alternative	Plus Project	No Project Alternative	Plus Project	
Sierra College Boulevard / English Colony Way	2.2	2.4	2.5	3.2	3.0	9.0
Sierra College Boulevard / Del Mar Avenue	5.9	4.9	5.6	5.4	5.8	
Sierra College Boulevard / Taylor Road	5.5	4.7	4.6	4.6	4.9	
Sierra College Boulevard / I-80 Westbound Ramps	6.5	4.6	4.4	4.5	4.6	
Sierra College Boulevard / I-80 Eastbound Ramps	5.3	4.4	4.7	5.0	5.0	
English Colony Way / Taylor Road	7.9	3.5	3.4	3.4	3.5	

<sup>1</sup> Maximum modeled concentrations include a background component, which represents the effect of all CO sources in the project vicinity, and a local component generated by vehicular traffic on the subject roadway. The background concentration for the eight-hour analysis was 2.1 ppm, the highest second-high monitored at the Rocklin monitoring station over a three-year period. No rollback was assumed for background concentrations, thus existing and future background concentrations were assumed to be the same.

<sup>2</sup> Eight-hour modeled concentrations were assumed to be 70% of the modeled one-hour contribution.

<sup>3</sup> Applicable standard for CO concentrations are for California. California ambient CO concentration standards are more stringent than the corresponding federal standards.

Results of the CO modeling effort indicate that future CO concentrations would not be substantially affected by the proposed project. With the 2010 General Plan Plus Project traffic scenario, traffic generated by the proposed project would increase CO concentrations at sensitive locations by up to 0.4 parts per million, but this increase would not create high CO concentrations. With the 2010 General Plan plus Buildout of Project Vicinity traffic scenario, predicted CO concentrations would be somewhat higher but would still not approach or exceed ambient CO standards.

The proposed project would not lead to violations of either the state or federal one- or eight-hour CO standards. Proposed project contributions to localized CO concentrations would be less than significant.

<b>IMPACT A-3:</b>	Increase in regional criteria air pollutant emissions
<b>SIGNIFICANCE:</b>	Significant
<b>MITIGATION</b>	
<b>Proposed:</b>	Mitigation Measures A-E (Incorporate pedestrian, bicycle, and golf-cart oriented design); T-O (Provide Class II bike lanes on Bickford Ranch Road and Lower Ranch Road); T-M (Provide park-and-ride lot and two bus stops); A-F (Incorporate mixed land uses into the project design to reduce external vehicle trips); A-G (Accommodate and encourage low-emission energy use); A-H (Install only natural gas CNG fireplaces); A-I (Provide public awareness materials); A-J (Incorporate into project CC&Rs the prohibition of open burning of any kind); and A-K (Implement an off-site mitigation program to reduce 105 percent of long-term air pollutant emissions)
<b>Significance After</b>	
<b>Proposed Mitigation:</b>	Less Than Significant
<b>Recommended:</b>	Mitigation Measures; A-L (Provide dedicated parking spaces at the park-and-ride lot with electrical outlets for electric vehicles); and T-N (Participate in fair share of the cost of limited transit services)
<b>RESIDUAL SIGNIFICANCE:</b>	Less than Significant

Proposed project operation would introduce stationary, area, and mobile sources of criteria air pollutant emissions to the study area. The primary area and stationary sources would include residential gas heaters, residential landscaping equipment, and commercial (golf course and roadside) landscape maintenance equipment. Other area source emissions would include those from residential barbecues and consumer product use, however emissions from these sources would be small. Mobile sources would include exhaust emissions from motor vehicles, and re-entrained dust emissions from motor vehicle travel on paved roads.

Table 8-7 summarizes maximum potential emissions associated with the proposed project. Operational emissions were calculated using CARB's URBEMIS7G emissions model. This model accounts for project-specific transportation data, including trip generation factors, project internal trip rates (i.e., vehicle trips internal to the proposed project), and external trip rates, along with other project-specific data such as average winter and summer temperatures and the project build-out year. Appendix D contains URBEMIS7G model output.

URBEMIS7G is able to estimate unmitigated project emissions, as well as quantify minimum emissions reductions realized through various project design elements, such as mixed land-uses, pedestrian oriented design, and provision of park-and-ride lots. A number of these emission-reducing measures are proposed as part of the Bickford Ranch Specific Plan design. Table 8-4 presents both unmitigated and mitigated

(proposed by Applicant) project emissions estimated by URBEMIS7G. Mitigation measures proposed by the Applicant and included in these estimates include the following:

**Table 8-7**  
**Proposed Project**  
**Maximum Daily Operational Emissions (lb/day)<sup>1,2</sup>**

Source Type		ROG	NO <sub>x</sub>	CO	PM <sub>10</sub>
<b>Summer Emissions</b>					
<b>Area Sources</b>					
	Residential Gas Heating	3	34	14	0
	Residential Landscaping Equipment	1	0	6	0
	Golf Course Maintenance Equipment	6	17	67	2
<b>Mobile Sources</b>					
	Motor Vehicle Exhaust	184	457	1635	162
	Entrained Road Dust	0	0	0	887
<b>Maximum Daily Emissions – Summer</b>		193	508	1723	1051
Emissions Reductions from Proposed Mitigation Measures		23	78	260	282
Mitigated Maximum Daily Emissions – Summer		170	430	1463	479
<b>Winter Emissions</b>					
<b>Area Sources</b>					
	Residential Gas Heating	3	34	14	0
	Residential Woodburning Stoves and Fireplaces (winter only)	515	311	4161	364
	Golf Course Maintenance Equipment	6	17	67	2
<b>Mobile Sources</b>					
	Motor Vehicle Exhaust	225	490	2128	162
	Entrained Road Dust	0	0	0	887
<b>Maximum Daily Emissions – Winter</b>		748	852	6371	1415
Emissions Reductions from Proposed Mitigation Measures		57	149	528	284
Mitigated Maximum Daily Emissions – Winter		691	703	5842	1131
<b>Placer County APCD Significance Criteria</b>		<b>82</b>	<b>82</b>	<b>550</b>	<b>82</b>

<sup>1</sup> Proposed project maximum daily emissions would occur during the winter months, therefore the total maximum daily emissions estimate does not include emissions from residential or commercial landscape maintenance equipment. Mobile source emissions based on CARB's URBEMIS7G methodologies.

<sup>2</sup> Assumptions include default ambient temperatures and other URBEMIS7G default assumptions (Sacramento County) for trip lengths, speeds, and percentage cold and hot starts. Trip generation factors of 9.57 trip per dwelling unit (t/du) for family residential, and 3.68 t/du for restricted age residential land uses were provided by DKS Associates (1999); approximately 26% of trips internal.

- A mixed land use design, i.e., residences and services located closely enough that external trips would be reduced;
- Pedestrian-oriented facilities, including pedestrian paths and sidewalks to most destinations, moderate shade coverage on streets, visually interesting land uses within walking distance, and a high degree of pedestrian safety;
- Bicycle oriented facilities, including some interconnected bikeways, paved shoulders for bike routes, and mixed land uses within bicycling distance;

- Transit infrastructure provisions, including a Park and Ride lot at the village commercial center, bus stops to accommodate future transit opportunities, and golf cart lanes along Heritage Ridge Road to provide access to golf facilities, residential neighborhoods, and the village commercial center.

Some air pollution *reducing* elements of the proposed project were not incorporated into the emissions estimates. For example, the circulation element of the proposed project provides for golf cart access to many destinations within the Heritage Ridge Plan Area, however the emissions reductions associated with internal golf cart travel were not incorporated into the emissions quantification. Emission reductions associated with such proposed project elements would be slight, and would not generate a substantial decrease in emissions estimates, and thus were not estimated for this analysis.

Other air pollution *generating* elements of the proposed project were not considered in the URBEMIS7G emission inventory. Gas- or charcoal residential barbecues would be a source of fugitive ozone precursor emissions primarily during the summer months. Consumer product use at proposed project residences, particularly aerosols and other sprays, would also represent new sources of ozone precursor emissions. Emissions from these sources would be small relative to pollutant emissions from motor vehicles and other sources. Pollutant emissions generated by these sources would not generate a substantial increase in emissions estimates, and thus were not estimated for this analysis.

As shown in Table 8-7, proposed project pollutant emissions estimates, incorporating all Applicant-proposed mitigation measures, would still exceed the Placer County APCD significance criteria. At buildout the proposed project would generate average daily summer emissions of 170 pounds per day (lb/day) of ROG, 430 lb/day of NO<sub>x</sub>, 1463 lb/day of CO, and 769 lb/day of PM<sub>10</sub>. Emissions of all four of these pollutants would exceed the PCAPCD significance criteria, and therefore would be considered significant.

Mitigation measures A-E, A-F, A-G, A-H, A-I, A-J, T-M and T-O have been proposed in the Specific Plan to reduce this significant impact. These measures are described in detail in Sections 8.4 and 7.4, and include the following:

- Install electrical outlets at the front and back of residences to accommodate electrical yard equipment;
- Encourage building design and landscaping conducive to passive solar energy use (i.e., building orientation in a south to southeast direction where feasible, encouraging planting of deciduous trees on western sides of structures, and groundcovers rather than pavement to reduce heat reflection);
- Require that all fireplaces and woodburning stoves installed in proposed project residences meet EPA-certifications; and
- Prohibit open burning of vegetative refuse.

While these proposed mitigation measures would accommodate non-vehicular travel patterns and help reduce pollutant emissions associated with energy consumption, the air quality benefit associated with these measures is not quantifiable. Emission reductions would not be likely to yield a large decrease in total project-generated emissions, however, and proposed project emissions would still exceed Placer County APCD significance criteria despite incorporation of the proposed mitigation measures.

Mitigation Measure A-K would require the Applicant to reduce the project's long-term air pollutant emissions by 40 percent. This can be accomplished by implementation of sufficient on-site (i.e., high density residential, pedestrian-oriented design, class I bicycle lanes) and off-site (i.e., on/off road heavy vehicle nitrogen oxide reduction, wood stove replacement, etc.) mitigation measures to reduce its long-term pollutant emissions. The PCAPCD considers these measures to be feasible. The Applicant can develop and implement such a mitigation program as approved by the PCAPCD. Alternatively, the



Applicant could choose to pay air quality mitigation fees to PCAPCD. Air quality mitigation fees would be determined by PCAPCD, and would be used by the District to achieve quantifiable emission reductions, thereby offsetting a large portion of emissions generated by the proposed project. Emission reductions would be achieved through the woodstove replacement program, the heavy-duty vehicle NO<sub>x</sub> reduction program, or other District programs that work to reduce or eliminate pollutant emissions beyond emission reductions already mandated by state or federal law. Mitigation Measure A-L would require the Applicant to implement additional residential design features beyond those proposed in the Specific Plan to accommodate and encourage low emission energy use. Implementation of Mitigation Measures A-K and A-L in conjunction with those measures proposed in the Specific Plan would reduce this air quality impact with respect to operational ozone precursor emissions to a less than significant level.

<b>IMPACT A-4:</b>	Inconsistent with the goals of the Placer County Air Quality Attainment Plan
<b>SIGNIFICANCE:</b>	Significant
<b>MITIGATION</b>	
<b>Proposed:</b>	Mitigation Measures A-E (Incorporate pedestrian, bicycle, and golf-cart oriented design); A-F (Incorporate mixed land uses into the project design to reduce external vehicle trips); A-G (Accommodate and encourage low-emission energy use); A-H (Install only natural gas CNG fire places); A-I (Provide public awareness materials); A-J (Incorporate into project CC&Rs the prohibition of open burning of any kind); T-M (Provide park-and-ride lot and two bus stops); T-N (Participate in fair share of the cost of limited transit services); and T-O (Provide Class II bike lanes on Bickford Ranch Road and Lower Ranch Road)
<b>Recommended:</b>	None
<b>RESIDUAL SIGNIFICANCE:</b>	Significant

The development would incorporate relevant and feasible Transportation Control Measures and Indirect Source Control Measures from the AQAP, including bicycle provisions, future transit and Park and Ride lot accommodations, mixed land uses, and design and development policies which would yield air quality benefits, described above. The proposed project is consistent with applicable policies identified in the 1991 AQAP (PCAPCD, 1997).

The proposed project would, however, generate substantial emissions of ozone precursor (NO<sub>x</sub> and ROG), CO, and PM<sub>10</sub> emissions. The AQAP outlines all feasible measures which Placer County will undertake in order to achieve the mandated five percent per year emission reductions, based on anticipated development and emissions associated with those developments. While the proposed project was included in the most recent General Plan growth projections, the General Plan projections are inconsistent with growth projections in the Air Quality Attainment Plan, which are used to predict future emissions in the County. Emissions associated with the proposed project would therefore hinder Placer County's ability to achieve emission reductions mandated by state Clean Air Act. The proposed project would thus be inconsistent with the goals of the AQAP.

### 8.3.3 General Plan Consistency

The Placer County General Plan policies addressing air quality are identified below, and a determination of the proposed project's consistency is made. The proposed project is consistent with Placer County's air quality policies.

## Air Quality—General

- 6.F.6 The County shall require project-level environmental review to include identification of potential air quality impacts and designation of design and other appropriate mitigation measures or offset fees to reduce impacts. The County shall dedicate staff to work with project proponents and other agencies in identifying, ensuring the implementation of, and monitoring the success of mitigation measures.

*Consistent.*

The proposed project has completed an air quality analysis that identifies appropriate mitigation measures. The project has incorporated feasible Transportation Control Measures and Indirect Source Control Measures from the Air Quality Attainment Plan, including transit stops, bicycle lanes, mixed land uses, and a park and ride lot.

- 6.F.7 The county shall encourage development to be located and designed to minimize direct and indirect air pollutants.

*Consistent.*

Placer County has identified the project site as one of its Mixed Use Specific Plan areas in the General Plan. The proposed project has completed an air quality analysis that identifies appropriate mitigation measures. The project has incorporated feasible Transportation Control Measures and Indirect Source Control Measures from the Air Quality Attainment Plan, including transit stops, bicycle lanes, mixed land uses, and a park and ride lot.

- 6.F.8 The County shall submit development proposals to the Placer County APCD for review and comment in compliance with CEQA prior to consideration by the appropriate decision-making body.

*Consistent.*

The proposed project has been submitted to the Placer County APCD for review and comment in compliance with CEQA prior to consideration by the appropriate decision-making body.

- 6.F.9 In reviewing project applications, the County shall consider alternatives or amendments that reduce emissions of air pollutants.

*Consistent.*

Land use alternatives to the proposed project are considered as part of this environmental analysis. Those alternatives do evaluate the potential air quality impacts with implementation of 10 land use scenarios. At least three of the alternatives would likely result in a reduction in air quality impacts.

- 6.F.10 The County may require new development projects to submit an air quality analysis for review and approval. Based on this analysis, the County shall require appropriate mitigation measures consistent with the Placer County APCD's 1991 *Air Quality Attainment Plan* (or updated edition).

*Consistent.*

An air quality analysis has been prepared for the propose project. This project has incorporated feasible Transportation Control Measures and Indirect Source Control Measures form the Air Quality Attainment Plan, including transit stops, bicycle lanes, mixed land uses and a park and ride lot.

### **Air Quality—Transportation/Circulation**

- 6.G.1 The County shall require new development to be planned to result in smooth flowing traffic conditions for major roadways. This includes traffic signals and traffic signal coordination, parallel roadways, and intra- and inter-neighborhood connections where significant reductions in overall emissions can be achieved.

*Consistent.*

Major access to the project site is planned from two points on Sierra College Boulevard. Planned improvements include road widening and a traffic signal at the future intersection of Bickford Ranch Road and Sierra College Boulevard. The internal street system allows connection between the planned communities.

- 6.G.3 The County shall encourage the use of alternative modes of transportation by incorporating public transit, bicycle, and pedestrian modes in County transportation planning and by requiring new development to provide adequate pedestrian and bikeway facilities.

*Consistent.*

Approximately 18.5 miles of public pedestrian paths or trails will be constructed with the proposed project. Class II bike lanes are proposed along both sides of Bickford Ranch Road and Lower Ranch Road. The proposed project will include two bus stops.

- 6.G.5 The County shall endeavor to secure adequate funding for transit services so that transit is a viable transportation alternative. New development shall pay its fair share of the cost of transit equipment and facilities required to serve new projects.

*Consistent.*

The proposed project includes a park-and-ride lot and two transit stops, and the Applicant has agreed to pay the fair share costs of limited transit services.

- 6.G.6 The County shall require large new developments to dedicate land for and construct appropriate improvements for park-and-ride lots, if suitably located.

*Consistent.*

A park-and-ride lot is planned with the proposed project.

## **8.4 MITIGATION MEASURES**

### **Mitigation Measure A-A: Provide dust controls**

Mitigation Measure A-A applies to Impacts A-1 and G-5.

The Applicant proposes to include dust controls during construction in its policies related to air quality. The Placer County Department of Public Works requires that a Grading Permit be obtained from the County prior to beginning any grading work. The permit will include a Grading Plan which will provide for revegetation of disturbed areas and vegetation maintenance. Mitigation Measure G-C describes the Grading Plan and Erosion Control Plan recommended for the proposed project.

In addition, the Applicant will require construction contractors for the proposed project to submit a construction emission/dust control plan to the PCAPCD prior to ground breaking. At a minimum, this plan shall include the following measures:

- Water exposed earth surfaces as necessary to eliminate visible dust emissions (at least one water truck will be available for every three pieces of earthmoving equipment);
- Suspend grading operations when wind is sufficient to generate visible dust clouds.
- Pave, use gravel cover or spray a dust control agent on all haul roads;
- Reduce speeds on unpaved roads to 15 mph or lower (this speed must be posted);
- Clean earthmoving construction equipment with water once daily, and clean all haul trucks leaving the site;
- Use tarpaulins for haul trucks which travel on public streets;
- Institute measures to reduce wind erosion when site preparation is completed; and
- Provide paved or grass-covered areas for construction employee vehicle parking.

Dust controls will ensure that all roadways, driveways, sidewalks, etc. be paved as soon as possible in the construction phase. The construction contractor should designate a person or persons to monitor the dust control program as approved by the PCAPCD, and to order increased watering, as necessary, to prevent the transport of dust off site. This designee's duties will include holiday and weekend periods when work may not be in progress.

For project components that would not be constructed / developed immediately following the mass grading phase, the following dust control measures are also recommended:

- Apply chemical soil stabilizers or commence reestablishing ground cover to construction areas within 96 hours of completing grading activities.
- Develop and implement a wind erosion monitoring program for areas which will remain inactive for extended periods; this program should at a minimum provide for weekly monitoring of inactive sites to assess the effectiveness of wind erosion controls.

These measures will be incorporated into the CC&Rs.

**Mitigation Measure A-B:** Maintain construction equipment and vehicles

Mitigation Measure A-B applies to Impact A-1.

Well-maintained equipment generates less pollutant emissions than poorly-maintained equipment. All construction vehicles and equipment will be maintained according to manufacturers specifications. Construction contractors must be required to show written evidence of appropriate maintenance prior to bringing equipment on site.

**Mitigation Measure A-C:** Implement a construction worker trip reduction program

Mitigation Measure A-C applies to Impact A-1.

Construction contractors will be required to develop and implement a construction worker trip reduction plan aimed at achieving an average vehicle ridership of 1.5. This would reduce vehicular pollutant emissions associated with construction employee travel.

**Mitigation Measure A-D:** Require use of low-emission construction materials and equipment where feasible

Mitigation Measure A-D applies to Impact A-1.

Construction contractors will be required to use low-VOC architectural coatings and asphalt in compliance with District Rules and Regulations. Use of low-VOC architectural coatings and asphalt would substantially reduce project-generated ROG emissions. Use of low-emission mobile and stationary construction equipment would reduce combustion emissions of all criteria air pollutants. Contractors will also be required to fuel stationary construction equipment with low-sulfur fuels, and use existing power sources (e.g., power poles) or clean fuel generators in place of temporary power generators whenever feasible.

**Mitigation Measure A-E:** Incorporate pedestrian, bicycle, and golf-cart oriented design

Mitigation Measure A-E applies to Impacts A-3 and A-4.

The Applicant proposes to include provisions for pedestrian walkways and sidewalks to most internal destinations and other pedestrian-oriented facilities, including pedestrian paths and sidewalks to most destinations, moderate shade coverage on streets, visually interesting land uses within walking distance, and a high degree of pedestrian safety. The proposed project also includes paved bicycle lanes and paths, interconnected bikeways, and mixed land uses within bicycling distance. The Circulation Element of the project also complies with this mitigation measure by encouraging golf-cart use for internal trips.

**Mitigation Measure A-F:** Incorporate mixed land uses into the project design to reduce external vehicle trips

Mitigation Measure A-F applies to Impacts A-3 and A-4.

The Applicant proposes to design the Village Commercial Center to accommodate day-to-day needs of proposed project residents, to minimize the need for external vehicle trips.

**Mitigation Measure A-G:** Accommodate and encourage low-emission energy use

Mitigation Measure A-G applies to Impacts A-3 and A-4.

A number of residential design features can accommodate and encourage use of alternative energy sources. The Bickford Ranch Specific Plan Air Quality Design Guidelines will be amended to include the following measures:

- Install natural gas hookups in all new fireplaces;
- Install a natural gas outlet in the backyard of all new residences for gas-burning barbecues;
- Install electrical outlets at the front and back of new residences for electrical yard equipment;
- Install low-NO<sub>x</sub> hot water heaters per PCAPCD Rule 246;
- Install electric vehicle recharging circuits in all residential garages in Heritage Ridge, and recharging raceways in all other residential garages;
- Incorporate into project CC&Rs the restriction to electric-powered golf carts on the project site;
- Encourage landscape maintenance companies to use battery-powered or electric equipment for non-residential maintenance activities, where feasible; and

- Construction contracts shall stipulate that at least 20% of the heavy-duty off-road equipment included in the inventory be powered by CARB-certified off-road engines, as follows:
 

175 hp – 750 hp	1996 and newer engines
100 hp – 174 hp	1997 and newer engines
50 hp – 99 hp	1998 and newer engines
- The prime contractor shall submit to the APCD a comprehensive inventory (i.e., make, model, year, emission rating) of all the heavy-duty off-road equipment (50 horsepower or greater) that will be used an aggregate of 40 or more hours for the construction project. APCD personnel, with assistance from the California Air Resources Board (if available), will conduct initial Visible Emission Evaluations of all heavy-duty equipment on the inventory list.
- An enforcement plan shall be established to evaluate on a weekly basis project-related on- and off-road heavy-duty vehicle engine emission opacities, using standards as defined in California Code of Regulations, Title 13, Sections 2180-2194. An Environmental Coordinator, who is CARB-certified to perform Visible Emissions Evaluations, shall routinely evaluate project-related off-road and heavy-duty on-road equipment emissions for compliance with this requirement. Operators of vehicles and equipment found to exceed opacity limits will be notified, and the equipment must be repaired within 72 hours.
- Minimize idling time to 10 minutes.
- Schedule operations affecting traffic for off-peak hours whenever possible.
- Use air conditioning units with an Ozone Destruction Catalyst. Provide natural gas lines or electrical outlets to all backyards to encourage use of natural gas or electric barbecues, as well as electric lawn equipment.
- Prohibit (through CC&Rs) the use of gasoline-powered lawn mowers on homes with lot sizes under 0.5 acre.
- Prohibit (through CC&Rs) use of gas-powered golf carts.
- Install Class I bicycle lockers along with bike racks in commercial site.
- Build unmanned informational kiosk in central location in Village Center.

The above measures will be included as part of the proposed project design and included in residential CC&Rs. In addition, the Air Quality Design Guidelines will be amended to encourage implementation of the following measures:

- Incorporate passive solar building design and landscaping conducive to passive solar energy use (i.e., building orientation in a south to southeast direction where feasible, encouraging planting of deciduous trees on western sides of structures, landscaping with drought-resistant species, and including groundcovers rather than pavement to reduce heat reflection);
- Incorporate solar heaters in proposed project residences as feasible;
- Include high-efficiency heating and other appliances, such as water heaters, cooking equipment, refrigerators, furnaces, and boiler units; and

- Include energy-efficient window glazings, wall insulation, and efficient ventilation methods on all new residential units.

**Mitigation Measure A-H:** Install only natural gas CNG fireplaces

Mitigation Measure A-H applies to Impacts A-3 and A-4.

**Mitigation Measure A-I:** Provide public awareness materials

Mitigation Measure A-I applies to Impacts A-3 and A-4.

The CC&Rs will require that educational materials regarding air quality be included in homeowners/renters packages for all occupants. Information contained in these packages will, at a minimum, provide information in the following areas:

- Commute options: Inform project occupants of the amenities provided by the proposed project in terms of alternative travel modes, including ridesharing and mass transit availability/schedules; and,
- Alternative transportation options: Provide maps showing pedestrian, bicycle, and golf-cart paths to community centers, shopping areas, and recreational areas.

**Mitigation Measure A-J:** Incorporate into project CC&Rs the prohibition of open burning of any kind

Mitigation Measure A-J applies to Impacts A-3 and A-4.

Open burning creates substantial pollutant emissions of ozone precursors, CO, and PM. The company employed to maintain landscapes for the proposed project will be prohibited from open burning of vegetative refuse anywhere in the SVAB. No open burning will be allowed on any of the residential, commercial, or recreational parcels.

**Mitigation Measure A-K:** Implement an off-site mitigation program to reduce 105 percent of long-term air pollutant emissions

Mitigation Measure A-K applies to Impact A-3.

To reduce the identified impact to a less than significant level, the Applicant shall implement an off-site mitigation program that is equal to reducing 40 percent of the proposed project's long-term air pollutant emissions. The Applicant shall develop the mitigation program which shall be approved by the PCAPCD. Alternatively, the Applicant could pay air quality mitigation fees to the Placer County Air Pollution Control District. Air quality mitigation fees would be used to fund measures aimed at improving air quality in Placer County, such as public transportation funding, financing of commuter rideshare programs, heavy duty NO<sub>x</sub> reduction programs, and the woodstove replacement program. To reduce the identified impact to a less than significant level, PCAPCD will require a reduction of summertime NO<sub>x</sub> emissions by 40 percent. Air quality mitigation fees will be based on a cost of \$10,000 per ton of NO<sub>x</sub> emission reduction. This measure has been implemented for a number of projects in Placer County to reduce a project's long-term air quality impacts.

**Mitigation Measure A-L:** Provide dedicated parking spaces at the park-and-ride lot with electrical outlets for electric vehicles

Mitigation Measure A-L applies to Impact A-3.

Additional residential design features can accommodate use of alternative energy sources. Amend the Bickford Ranch Specific Plan Air Quality Design Guidelines to include dedicated parking spaces at the park-and-ride lot with electrical outlets for electric vehicles.

**Other Mitigation Measures:** Mitigation Measures T-A, Prepare and implement construction traffic management plans for on-site construction activities for Bickford Ranch Road and Sierra College Boulevard, and coordinate with appropriate agencies in the preparation and implementation of construction traffic management plans for required off-site improvements; T-M, Provide park-and-ride lot and two bus stops; T-N, Participate in fair share of the cost of limited transit services; and T-O, Provide Class II bike lanes on Bickford Ranch Road and Lower Ranch Road, are discussed in Chapter 7. Mitigation Measure G-B, Prepare and implement a grading and erosion control plan, is discussed in Chapter 10.